WHAT IS CLAIMED IS:

1. A molding method for a foamed product, characterized in that a chip- or pellet-like resin material is evacuated and subjected to dehumidifying/drying processing, and replacement processing in an inert gas in a pre-processing unit, the resin material is then held in an inert gas of a predetermined temperature and pressure in an inert gas permeation unit for a predetermined period of time, the temperature and pressure are decreased, the material is fed to a material hopper whose temperature and pressure are controlled, the material is fed to a plasticizing unit to which a gas of a predetermined temperature and pressure is fed, the resin material is melted in the plasticizing unit, the resin material is injected/charged into a mold which is evacuated in advance to a pressure not more than atmospheric pressure, the pressure is restored to atmospheric pressure after the resin material is cooled for a predetermined period of time, and a foamed product is extracted by opening the mold.

2. The method according to claim 1, characterized in that the dehumidifying/drying processing in the pre-processing unit is performed by using hot air passing through a moisture adsorbing material such as silica gel.

3. The method according to claim 1, characterized in

that in the dehumidifying/drying processing in the pre-processing step, evacuation is performed by a vacuum pump first, and then replacement is performed by using an inert gas.

4. The method according to claim 1, characterized in that evacuation is performed by using a vacuum pump after the pre-processing step is performed by using hot air passing through a moisture adsorbing material such as silica gel, and replacement is then performed by using an inert gas.

5. The method according to claim 1, characterized in that when the inert gas permeates the resin, the temperature is not more than a thermal deformation temperature of the resin, and the resin is in a solid state.

6. The method according to claim 1, characterized in that when the inert gas permeates the resin, the pressure of the gas falls within a range of 0.5 MPa to 6 MPa.

7. A foam molding method characterized in that while a material is fed from the inert gas permeation unit, an opening/closing valve of a material hopper which is located on the plasticizing unit side is kept closed.

8. The method according to claim 1, characterized in that while a material is fed from a material hopper to the plasticizing unit, an opening/closing valve of the material hopper which is located on the inert gas

permeation unit side is kept closed.

9. The method according to claim 1, characterized in that a metering portion of a molding apparatus is filled with an inert gas of a pressure of 0.1 MPa to 6 MPa and a temperature not more than a thermal deformation temperature of the material by an inert gas feed controller.

10. The method according to claim 1, characterized in that the plasticizing step in a molding apparatus is performed with a back pressure of 0.5 MPa to 6 MPa.

11. The method according to claim 1, characterized in that a resin discharge port of the plasticizing unit of a molding apparatus can be opened/closed by an opening/closing needle, and is kept closed except when a resin material is discharged and the holding pressure step is performed.

12. The method according to claim 1, characterized in that the mold incorporates a valve gate type hot runner system, and a valve gate is kept closed except when a resin material is discharged and the holding pressure step is performed.

13. A molding apparatus for a foamed product, characterized by comprising a pre-processing unit which is connected to a material silo and removes moisture and fats adhering to a material, an inert gas permeation unit which is connected to said pre-processing unit and constituted by an inert gas

cylinder, a pressure reducing unit, a pressure-relief valve, a gas metering unit, gas flowmeter, a heater, a pressure sensor, a pressure controller, a temperature sensor, a temperature controller, and a pressure vessel, a material feed pump connected to said gas permeation unit, a material hopper connected to said material feed pump, an opening/closing valve controller connected to said inert gas permeation unit and an opening/closing valve of said material hopper, a gas feed controller coupled to a metering portion of a molding unit plasticizing unit through a gas feed pipe, a molding unit, and a mold which is connected to a vacuum pump and has a seal member.

14. The apparatus according to claim 13, characterized in that said pre-processing unit comprises a dehumidifier and an inert gas feed unit.

15. The apparatus according to claim 13, characterized in that said material hopper has two opening/closing valves and comprises a heater, a temperature sensor, a temperature adjusting unit, a pressure sensor, a pressure controller, a fan, and a fan motor.

16. The apparatus according to claim 13, characterized in that said gas feed controller comprises an inert gas cylinder, a pressure reducing valve, a pressure-relief valve, a gas metering unit, a gas flowmeter, a heater, a pressure sensor, a pressure

controller, a temperature sensor, a temperature controller, and a pressure vessel.

17. A foamed product characterized by being molded by the molding method defined in claim 1.

18. A foamed product characterized by being molded by the molding apparatus defined in claim 13.

19. A foam molding method of molding a resin molded member by injecting a resin material into a mold, characterized in that a foaming gas is made to permeate the resin material in the step before the step of plasticizing the resin material.

20. A foam molding method of molding a resin molded member by injecting a resin material into a mold, characterized in that after the step of dehumidifying/drying the resin material, the step of making an inert gas permeate the resin material, and then the resin material is injected into a mold through the plasticizing step.

21. A molding method for a foamed product, characterized in that a chip- or pellet-like resin material is dehumidified and evacuated/dried, an atmosphere is replaced by an inert gas such as nitrogen or carbon dioxide gas, and then the resin material is held for a predetermined period of time at a temperature not more than a thermal deformation temperature of the resin material and a pressure of 0.5 to 0.6 MPa which is not more than a supercritical

pressure of the inert gas to make the inert gas permeate the resin material.

22. A foamed product characterized by formed by the method defined in claim 21 with an average cell diameter of 10 μm to 60 μm and a foaming ratio of 5 to 20%.

23. A resin molded product for audio equipment or video equipment, which is incorporated in a housing of the equipment for outputting an audio signal or video signal and is molded from a resin material for holding a driving member in the equipment, characterized in that vibration damping function objects are contained in the resin molded product in the step of molding the resin molded product.

24. The resin molded product according to claim 23, characterized in that the vibration damping function objects comprise a gas contained in the resin molded product in the molding step.

25. The resin molded product according to claim 23, characterized in that a size of the cell contained in the resin molded product is set to a diameter that implements a function of absorbing vibrations generated by the driving member.

26. The resin molded product according to claim 23, characterized in that a diameter of the cell is set within a range of 10 to 100 μm.

27. A resin molded product for audio equipment or

video equipment, which is formed from a resin material on which a vibration source unit in the audio equipment or video equipment is mounted, characterized in that function objects for preventing a deterioration in function of audio playback operation or video playback operation due to the vibration source unit are contained in the molded product.

28. The resin molded product according to claim 27, characterized in that the function objects comprise a gas, and a bubble diameter of the gas is adjusted in the step of molding the resin molded product.

29. A housing structure for audio equipment or video equipment, characterized by comprising a structural member of the equipment body, means for generating an audio signal or video signal, and a resin molded product which is located between said signal generating means and said structural member and contains vibration damping function objects for damping vibrations externally transferred through said structural member.

30. The housing structure according to claim 29, characterized in that the vibration damping function objects comprise a gas by which a cell size is adjusted.

31. A resin molded product formed by molding a resin material, characterized in that a gas is contained in the resin material to form cells, and external vibrations are damped by making the cells deform upon application of the vibrations.

32. The molded product according to claim 31, characterized in that the cells in the resin molded product have different diameters depending on positions of the cells in the molded product.

33. The molded product according to claim 32, characterized in that the cells in the resin molded product gradually increase in diameter toward a central portion of the molded product.

34. A structural member formed from a resin material, characterized in that a viscosity property near a surface layer of the structural member is made stronger than that near a central portion, and a spring property near the central portion is made stronger than that near the surface layer.

35. The structural member according to claim 34, characterized in that the structural member is a structural member which is molded from a resin material and incorporated in audio equipment or video equipment.

36. A manufacturing method for a structural member molded from a resin material, characterized in that a mold member having a cavity corresponding to the structure to be molded, injection means for injecting the molten resin material into the mold member, means for injecting a gas into the molten resin material in the cavity, and means for controlling a surface temperature of the mold member are provided, and the surface temperature of the moldiscontrolled to a

temperature not more than a predetermined temperature with respect to a thermal deformation temperature of the resin material by the control means to make bubbles of the gas near a surface position in a resin molded product become smaller than bubbles of the gas at a central portion of the molded product.

37. An antivibration member for incorporating a driving unit in an equipment body, characterized in that when the antivibration member is molded by using a resin material, a gas is injected into the resin material to form cells, and diameters of the cells in the molded product are set to gradually increase from a surface of the molded product to a central portion.

38. An antivibration mechanism for holding a driving unit in an equipment body, characterized in that the driving unit is mounted on the equipment body through a resin molded product in which cells are formed by injecting a gas into the resin molded product in the molding step for the molded product and which is mounted on a mount portion of the driving unit.

39. An antivibration mechanism characterized in that the resin molded product of the antivibration mechanism is the resin molded product defined in claim 38.

40. A screw fastening member characterized in that the screw fastening member has a screw hole with which a male thread is threadably engaged, and is molded from a resin material, and cells having diameters on the

micron order are formed in the molded product by injecting a gas into the resin material in the step of processing the resin material.

41. A processing method for an antivibration member, characterized in that a pellet-like resin material fed to a resin material portion is fed to a hopper connected to a plasticizing unit of an injection molding unit, the resin material is fed from the hopper to a plasticizing portion of the plasticizing unit, the resin material is heated and kneaded by rotation of a screw mounted in the plasticizing unit and heat generated by a heater, a gas is fed from a gas feed portion to the plasticizing portion through a feed path, the molten resin material and the gas are mixed and the gas permeates the resin material in the plasticizing portion, a predetermined amount of mixture of the resin material and the gas is charged into a cavity in a mold whose temperature is controlled to a predetermined temperature in advance at a predetermined pressure and speed, and the holding pressure step is performed for a predetermined period of time with a predetermined holding pressure, thereby obtaining a molded product after cooling.

42. A molded product which is made of a resin material and on which first means including a vibration source object and second means including a reception object for receiving a signal from the vibration source

object are mounted, characterized in that damping function objects for damping vibrations generated by the vibration source object are contained in the molded product in the molding step for the molded product.

43. The molded product according to claim 42, characterized in that the vibration source object comprises a rotating member.

44. The molded product according to claim 42, characterized in that the reception object comprises an optical element.

45. The molded product according to claim 42, characterized in that the molded product comprises a housing in which the object incorporated in electric equipment is mounted.

46. The molded product according to claim 42, characterized in that the damping function objects comprise a gas.

47. The molded product according to claim 46, characterized in that sizes of the cells in the molded product fall within a range of 10 to 100 μm.

48. A molded product made of a resin material which holds a rotating member for receiving information from an information source and transferring the information to an information reception object and the reception object for receiving the information from the rotating member on a mount surface while maintaining an optical positional relationship between the rotating member and

the reception object, characterized in that damping function objects for damping vibrations generated by the rotating member are contained in the molded product.

49. The molded product according to claim 48, characterized in that the information from the information source is a signal based on laser light.

50. A mount member on which transfer means for transferring a signal from signal generating means for generating image information to an optical element upon rotation, characterized in that the mount member is molded by using a resin material, and a function portion for damping vibrations is molded together in the molding process.

51. A molded product which is molded from a resin material and incorporated in an image forming apparatus, characterized in that means for transferring an image signal from image creating means and image reception means are mounted on the molded product and cells are formed in the molded product to suppress an influence of vibrations on the image reception means.

52. The molded product according to claim 51, characterized in that a vibration damping factor between a position of the image transfer means and a position of the image reception means is adjusted to not less than 35 dB/sec.

53. The molded product according to claim 52, characterized in that a flexural rigidity of the molded

product is set to 4,500 to 9,800 MPa.

54. A manufacturing method for a damping function molded product, characterized in that injection molding is performed by using resin pellets which an inert gas of not more than a supercritical pressure is made to permeate in advance at a temperature not more than a thermal deformation temperature of a resin material.

55. The method according to claim 54, characterized in that a mixture of the resin material and the inert gas controls the number, shapes, and sizes of cells in the molded product by controlling conditions including a pressure with which the gas is injected into the resin material, an amount of gas injected, an injection pressure of the resin material, an injection speed, an injection amount, a holding pressure, a holding pressure time, a cooling gradient of the mold, and a cooling time.